

ASHBURTON WATER MANAGEMENT ZONE COMMITTEE AGENDA

A **Meeting** of the Ashburton Water Management Zone Committee will be held as follows:

DATE: Tuesday 30 May 2017

TIME: 11:30 am

VENUE: Council Chamber
2 Baring Square East
Ashburton

MEETING CALLED BY: A Dalziel, Chief Executive, Ashburton District Council
B Bayfield, Chief Executive, Environment Canterbury

ATTENDEES: Mr Chris Allen
Mr Ben Curry
Mrs Angela Cushnie
Mr Gordon Guthrie
Mr Cargill Henderson
Mr Bill Thomas
Mr John Waugh
Mr Arapata Reuben (Te Ngai Tuahuriri Runanga)
Mr Karl Russell (Te Runanga o Arowhenua)
Cr Stuart Wilson (Ashburton District Council)
Councillor David Caygill (Environment Canterbury)

Zone Facilitator

Olivia Smith

Tel: 027 886 3949

olivia.smith@ecan.govt.nz

Environment Canterbury

Committee Advisor

Louise Glennon

Tel: 307 9637

louise.glennon@adc.govt.nz

Ashburton District Council

Tangata Whenua Facilitator

Peter Te Rangihiroa Ramsden

Tel: 027 553 3140

peter.ramsden@ecan.govt.nz

Environment Canterbury



4 Register of Interests

Representative's Name and Interest	
Chris Allen	Farm owner of sheep, beef, lambs ,crop Water resource consents to take water from tributary of Ashburton River and shallow wells National board member Federated Farmers of New Zealand with responsibility for RMA, water and biodiversity Member of Ashburton River Liaison Group
David Caygill	Environment Canterbury Councillor Chair - Business NZ's Energy Council Chair – Technical Advisory Group (TAG) on Water & Nutrient Allocation
Ben Curry	Chief Executive Officer – Rangitata Diversion Race Management Limited Chair of Recreational and Amenities Working Group Committee
Gordon Guthrie	CEO Electricity Ashburton Limited (t/a EA Networks) Director – Barrhill Chertsey Irrigation (incl. Water Utilities Limited) Farming partnership – Winchmore (Ashburton North branch)
Karl Russell	Arowhenua Marae Trustee
Arapata Reuben	Trustee – Tuahiwi Marae Trustee – Tuhono Trust Trustee – Mana Waitaha Charitable Trust Member - National Kiwi Recovery Group Rūnanga Rep and Chair – Christchurch – West Melton Water Zone Committee
Bill Thomas	Farm owner of Longbeach Estate Ltd (sheep, beef, lambs, arable, dairy) Member of Eiffelton Irrigation Scheme
Stuart Wilson	Ashburton District Councillor and Chair of Service Delivery Committee A son who is a Director of Mayfield Hinds Irrigation Co and RDR
John Waugh	Member of the Ashburton Branch of the Royal Forest and Bird Protection Society

Minutes of a meeting of the **Ashburton Water Management Zone Committee** held on Tuesday 18 April 2017, commencing at 1.00pm in the Council Chamber, 2 Baring Square East, Ashburton.

Present

Councillor David Caygill, Cr Stuart Wilson, Chris Allen, Gordon Guthrie, Cargill Henderson, Arapata Reuben (Te Ngai Tuahuriri Runanga), Bill Thomas (Chair) and John Waugh

In attendance

Environment Canterbury: Olivia Smith (Facilitator), Peter Ramsden (Tangata Whenua Facilitator)

Ashburton District Council: Louise Glennon (Business Support Officer – minutes) and Cr Price

Two members of the public attended the meeting.

1 Welcome and Karakia

The Chair welcomed everyone to the meeting and the opening karakia was offered by Peter Ramsden.

2 Apologies

Karl Russell (Arowhenua Runanga), Ben Curry, Angela Cushnie

3 Extraordinary Business

None

4 Register of Interests

None

5 Confirmation of Minutes

That the minutes of the Ashburton Water Management Zone Committee meeting held on 28 February 2017, be taken as read and confirmed with one change of name from Howe to Waugh.

Caygill/Wilson

Carried

5.1 Matters Arising

The Chair commented on the excellent field trip which took place in lieu of the March meeting and gave thanks to Donna Lill and her team for organising.

6 Correspondence

Letter from Grant Davey, regarding a technical report completed on groundwater in the Hinds Catchment which was helped inform the Managed Aquifer Recharge Pilot Project. Chris recommended that it is tabled for discussion at the next meeting to which the Committee agreed.

7 Facilitator Update

Olivia asked if there was any interest in having a field trip to North Ashburton, the area from Ashburton River to the Rakaia, to gain a better understanding of the area. It was agreed to have a short meeting in May, followed by a field trip immediately thereafter.

8 Election of Chair, Deputy Chair, Regional Committee Representative and Biodiversity Working Group Members

Nominations for the Chair of the Ashburton Zone Committee.

That Bill Thomas be nominated as Chair of the Ashburton Zone Committee for the term of one year.

Allen/Reuben

Carried

Nominations for the Deputy Chair of the Ashburton Zone Committee.

That Chris Allen be nominated as Deputy Chair of the Ashburton Zone Committee for the term of one year.

Thomas/Wilson

Carried

Regional Committee Representative, it was discussed that Ben should continue in this role but no formal nomination was made due to his absence. This will be formalised at the next meeting.

It was agreed that Ben would continue as the alternative representative on the Rakaia Enhancement Fund and this will be formalised at the next meeting due to Ben's absence today.

The Chair suggested that rather than setting up a Biodiversity Working Group for consideration of the Immediate Steps Projects, they should continue to be heard by the full Committee, to which the group agreed. Donna Lill will continue to provide project details to interested members of the committee in advance of the meeting. This provides interested members will an opportunity to discuss projects in more detail.

9 Update on RDR Management Limited (RDRML) environmental compliance

Reuben Edkins spoke to his presentation.

10 Managed Aquifer Recharge Governance Group Update

Peter Lowe talked about the members and the experience they bring to the group. The first meeting was held on 31 March, with a technical working group meeting taking place on 24 April and strategic planning meeting on 26 May, to look at funding, finances and structure. The committee wrote to ADC in December regarding ongoing supply of water for the Pilot Project and related trials. Olivia advised a response will be provided in due course after Peter Lowe and Bob Bower present to the ADC Council on the 18th May. A letter was also sent to Ecan in December regarding monitoring support for the Pilot Project. The committee still await a response.

Peter Ramsden left the meeting at 1.54pm

11 Canterbury University Research

Katie Coluccio spoke to her presentation.

12 Immediate Steps Fund New Projects for Consideration

Donna Field spoke to her and Sarah Heddell's presentation on their three proposed projects – Harding Creek, Staveley Bush Camp and Thornton Wetland.

Harding Stream is a new project and funding is for riparian planting. Requesting \$5,376 for a \$22,176 project. Donna Field advised that Council have reassured her that this is not going to be one of the stock water races closed.

That the Committee recommends funding the Harding Stream project.

Caygill/Allen

Carried

Staveley Bush – this has all been fenced off from deer, access given to local school and voluntary groups. Approximately 10 hectares. Big issue with weeds such as sycamore, Darwins Barberry, and cotoneaster. \$5,600 requested against a total cost of \$8,500. Bill suggested putting up a sign at this location.

That the Committee recommends funding the Staveley Bush project.

Caygill/Guthrie

Carried

Sarah spoke to her presentation on Thornton Wetland; they have a very engaged landowner. Asking for funding for weed control of \$22,495.

That the Committee recommends funding both projects.

Caygill/Allen

Carried

Donna Lill advised the group that the two key areas her team is looking at are native biodiversity in the foothills area and lowland spring fed streams. She will prepare a map/summary to show what projects have been completed in these focus areas.

13 5 Year Outcomes and Milestones Delivery quarterly update – January – March 2017

Donna Lill spoke to her presentation. Chris asked whether any of the Canterbury biodiversity strategy funding has been given to the project on the Ashburton River in addition to all the volunteer hours. Forest & Bird have put in a lot of effort on this project which is much appreciated. Going forward the project will involve two woody weed control exercises twice a year.

350 letters will be going out to landowners in the Ashburton Zone regarding the Farming to Good Management Practice programme. Landowners over 50ha, excluding members of irrigation schemes, will receive this letter. Copy of letter to be send to Committee for information.

14 Reports for Committee Information

14.1 Consents Update

Boundary Drain Trial Group consented.

RDR Klondyke storage application is going to a hearing in June.

Lake Extension Trust Ltd application, further information requested from application to be provided shortly.

Next meeting

The next meeting of the Ashburton Water Zone Committee will be held on Tuesday 30 May 2017, followed by a field trip.

The meeting concluded at 3.29pm.

Dated this 27 day of June 2017 _____ (Chair)

6 Correspondence

6.1 Inward Correspondence

6.1.1 Letter from Alistair Morrison regarding low well levels

Litterty Farm Trust
A Morrison
858 Maronan Valetta Road
Ashburton 7778
11/05/2017

Ashburton Zone Committee

Dear Members,

After sharing a number of emails and a letter with David Caygill regarding my concerns about what I call the over allocation of the deep well aquifers by allowing the transfer from shallow stream depleting aquifers beside the Hinds River and using the wrong information for well correlations for the issuing of Valetta Adaptive Management consents I am writing to the Zonal Committee firstly to alert you to the sharp decline in the deep well aquifers at our farm at 858 Maronan Valetta Road during the current irrigation and secondly to ask the Zonal Committee to recommend to Ecan that the practise of issuing these deep well transfers be reviewed when taking into account the current poor state of the deep aquifers in the upper plains. From what I can see all that has happened by allowing this transfer from shallow unreliable stream depleting consents to deep aquifers is that the problem has been transferred to the deep aquifers, after all when the shallow consents were issued many years ago they were not supposed to be hydraulically connected to the Hinds River, but now they are called shallow stream depleting consents.

The other question is the Zonal Committee aware that one of the caveats that Patrick Durney recommended to the hearing commissioners that allowing surface water takes to switch to deep groundwater would have a negative impact on the catchment unless additional recharge (e.g. MAR) was brought in. It does not make any sense to me to provide water from MAR to cover up an over allocation of a resource, I thought MAR was solely for the dilution of nitrates.

To sum up I ask the ZC to think carefully about the allocation of water in Valetta Zone, there is not enough knowledge to allow any more transfers to deep aquifers, it's all very well for everyone to blame Ecan for past poor decision making but if local people make poor decisions then it is a sad day for all concerned.

I have plenty of water levels and well records to back up all my statements which I am happy to share with you if need be and last thing I want to hear from you in your reply is.... we are sympathetic to your low well level problems but it's not our problem write to Ecan, because I have already done that. Looking forward to your reply.

Thankyou.

Alistair Morrison.

6.1.2 Letter from Environment Canterbury regarding MAR

18 May 2017

Bill Thomas
Chair of Ashburton Zone Committee
1754 Longbeach Road
Ashburton
7774



Customer Services
P. 03 353 9007 or 0800 324 636

PO Box 345
Christchurch 8140

P. 03 365 3828
F. 03 365 3194
E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Dear Bill

Re: Managed Aquifer Recharge (MAR) Pilot Project Monitoring

Thank you for your letter dated 16 December, requesting Environment Canterbury support for the ongoing monitoring of the MAR Pilot Project.

Environment Canterbury appreciate that the MAR Pilot Project is critical to helping understand how MAR could help deliver the Canterbury Water Management Strategy in the Hinds Catchment.

We wish to support the monitoring of MAR Pilot Project by undertaking the monitoring, analysis and reporting required in the consents associated with MAR. This monitoring will include surface and groundwater quantity and quality, and reporting will be undertaken as required. Environment Canterbury will commit to delivering this monitoring support for Years 2-5 of the Pilot Project.

Yours sincerely

A handwritten signature in blue ink, appearing to read "Stefanie Rixecker".

Stefanie Rixecker
Director of Science

6.1.3 Letter from Grant Davey regarding the Golders Report

Comments on the Golders report – Hinds / Hekeao Catchment Groundwater System. Geostatistical Modelling of Aquifer Lithologies

A geological model is built from geological understanding and the use of good validated data. This report has neither. Without a good geological understanding the data can't be validated, the model can't be constructed and the results can't be evaluated.

Geological Understanding

Geological understanding requires using established geological methodology – in place since Hutton more than 200 years ago. Very simply, this involves literature research and fieldwork.

The literature research (Canterbury Plains Geology) done for this model is grossly superficial, no analysis of the sedimentary facies present in the Canterbury Plains or other similar gravels is done. No geological understanding is evident and no conceptual model is arrived at. Half a page is surely not enough to summarise the relevant geological literature.

Browne and Thresher (1996) and Browne and Naish (2003) report three gravel facies, three sand facies, and a mud facies. This is similar to facies recognized in other papers. It is essential to ask whether these facies could be recognized by drillers using rotary drilling methods. The answer to me is absolutely not. Inspect the sea cliffs near the mouth of the Ashburton River, for example, and ask yourself whether a driller or anyone else could construct a meaningful drill log from rotary chips of a bore drilled just back from them. These cliffs represent a large part of the thickness of the last glacial period and I see no reason why they would not be representative of the Canterbury Plains gravels (outside the Christchurch area) as a whole. Clast size would increase inland, little else would change.

To consider creating a geological model such as this exhibits a lack of understanding of the braided river depositional environment. Braided rivers are long and narrow sedimentary environments where thin and discontinuous deposits of the quite obscurely different gravel-dominant facies are randomly stacked one on top of the other. The river then changes course and stacks these narrow deposits beside where the previous ones were deposited. I can envisage only one way this could result in a stratigraphy which could be computer modelled. This is illustrated in the conceptual model of my report U06/08 – a situation where highly permeable channel deposits have somehow not been preserved. My explanation for this is that they are only preserved when deposition is very rapid, deposition rates would drop off at the end of each glacial period.

Shulmeister (2007) states - The gravels in the pro-glacial fans have a sheet like appearance at gross scale but at finer scale demonstrate wide lateral and vertical variability. Individual units can and do form sheets with lateral extents in the range of hundreds of metres or channel and bar sequences with landform scales of metres to tens of metres. Individual bed thicknesses are generally in the order of a metre or less... How can this result in a stratigraphy that is thick enough or extensive enough to computer modelled? He goes on to state – **The default model for the gravels of the inland parts of the plain should be that the gravels are treated as a single hydrogeological unit.** This was work commissioned by ECan from perhaps the most qualified expert in Canterbury Quaternary geology and has subsequently been completely ignored. ECan and Golders used 5 hydrogeological units in this model instead of the one he concluded was actually there.

One of the key misconceptions of the Golders report regards the amount of clay in the gravel. The drillers very commonly use the term “claybound gravel” – and they log thick deposits of this. I've yet to see any description in the literature of such a material. Miall (1977) states that silt and clay may comprise a very small percentage of a braided-stream deposit. This is what should be expected in such a high energy environment. Some overbank clay would be deposited, but most would be taken in suspension out to sea. The overbank fines would be later eroded away when the river changed course. Browne et.al. states that mud occurs within gravel facies as either discrete layers a few centimetres thick or as more diffuse zones up to 80cm thick where mud is an important matrix component. He suggests that the mud is post-depositional – this is what I described at the Lowcliffe exposures. There is no way that such thin, irregular

and discontinuous deposits could be modelled, anyway they are actually indicative of high permeability conditions, not low permeability. The Golders report states that it is possible that silts and clays are under-represented in the dataset as these fine sediments are more difficult to recognise and quantify from wash drilled samples. The opposite is the case, the fine sediments are grossly over-represented for the same reason – they have been washed away by the rivers and not deposited in the first place.

The report appears to perpetuate the old ECan misconception that the aquifers are somehow the result of interglacial processes – look at the Lowcliffe outcrops, read Browne and Thresher, Leckie (D.A., 1994), my report U06/08 or the first few points of Shulmeister's evidence to see why.

My initial reason for critiquing the Golders report was the failure to consult my report as mentioned above. This report was written about outcrops within the Golders report study area and to my knowledge represented the first time an ECan or any other hydrogeologist had actually sought out and documented Canterbury Plains aquifer exposures. Despite this, from what I can tell it has been ignored by ECan in the last 11 years. It was not ignored by ESR. After he received a draft copy of it, Rod Dann asked to be shown the Lowcliffe outcrops. I understand that this was due to the fact that what I was describing was what was evident from the Burnham tracer experiments. My report has been referenced in at least one of their published papers and I have it in writing that the aquifer structure work they did at Kyle in 2011 *was "effectively working on the taking the conceptual model of the Canterbury Plains aquifer, presented by Grant Davey (2006) to the next level..."*. My report was surely one of the key pieces of previous work that should have been consulted by ECan/Golders.

My report U06/11 was also not consulted. In this I inferred multiple aquifers in the Hinds area – on the basis mainly of descriptions in the drill logs of water and the geological indications of water – iron stained and free gravel. I then clearly showed that just down from the Valetta scheme there are at least two aquifers present – an unconfined one and a semi-confined one. If this is not true, an alternative explanation is required. Note that this report was produced with considerable consultation with people such as David Scott and Marc Ettema and it was reviewed by Howard Williams, read and approved for release by Michael Dicker and George Griffiths. I know that it is the policy of the manager of the ECan groundwater section that there is only one aquifer in Canterbury, but one (unconfined aquifer) plus one (semi-confined aquifer) equals two aquifers. The presence of more than one aquifer in the Hinds area, which must have a geological reason, should have been considered in the Golders report. In section 7.4 they simply state that the aquifer is considered generally unconfined – which is against the evidence in my report.

The results of literature research always need to be validated and improved upon with fieldwork. At Hinds this would include the below, all of which I did when I worked there –

- Visiting as many outcrops as possible - in gravel pits, river banks and sea cliffs. The sea cliffs at Lowcliffe are key outcrops for the geological understanding of the Canterbury Plains aquifers.
- Finding when galleries are being dug and visiting and describing the exposure. Galleries are wonderful places for studying Canterbury Plains groundwater.
- Logging several water bores, this will give an appreciation for what drillers could have achieved over the years with their logging. This would be absolutely critical in production of a geological model of any part of the Canterbury Plains.
- Talking to drillers, gallery diggers and farmers who have actually observed groundwater.

Once you have done this sort of thing, some degree of knowledge of the Hinds geology should result. For example, you will confirm that "claybound gravel" does not exist – at least outside of actual aquifer material. From my reading of the Golders report, if any fieldwork was done by any participants in the Golders report, no lessons were learnt.

A serious attempt to produce a geological model of the Hinds Plains would involve someone who has a background in braided river sedimentology. The manipulation of extremely poor quality data in a computer by people with what seems to be no knowledge of this sort of geology is not appropriate. I find it very odd that this publically available report was anonymous. The names, qualification and experience of consultants are usually given on their reports. Given that Vulcan (mining software) was used to construct

the model, I can only assume that mine geologists did the work. There would be very few mine geologists with expertise in braided river sedimentology.

I told an ex-mining industry consultant, who literally wrote the textbook on geological methods in mineral exploration and mining, about the Golders report. He had the following anecdote –

Golders were brought in to do ore reserve calculations on an advanced gold prospect (Paulsen's in the Ashburton) that I had done a lot of work on. True to form, they virtually ignored my detailed geological work, the interpreted plans and sections, the reports, the established visible natural grade cut-offs. Their whole exercise relied on geostatistical models and manipulations of assay numbers. Managed to triple the tonnage at the expense of halving the grade. The client was mightily impressed by all the advanced math, kriging, algorithms etc. etc. I had a battle on my hands, which I lost of course. But the company lost too: they eventually ran out of interest (and money) and sold the prospect to another company with more sense and deeper pockets, who went on to develop a successful high grade underground mine

This is an example (from the Ashburton area of Western Australia) where good data (assays) was used - unlike at Hinds. But without geological understanding the result was disastrous for the company that commissioned the report. When I was in charge of exploration at the Gosowong gold mine in Indonesia, my company was large enough to have its own inhouse geostatistical expertise. The resource geologist insisted on coming to site a number of times to make sure that he understood the geology and that the data he was working on was properly validated. I was required to produce a detailed geological report for him. When I was working on a phosphate deposit in Australia, the geostatistical modelling was done by a consultant who had already worked on a very similar deposit. Even so he too required site visits to the drill rigs to familiarise with the geology and to make sure the data was properly validated. This is standard and essential procedure.

The Aqualinc Canterbury Plains groundwater model of the mid 2000s is not referenced. In my recollection it included a geological model that was derived from the driller's logs in a very similar way to the Golders model.

The data

In mineral exploration drilling of a prospect would typically involve logging done by maybe half a dozen to sometimes dozens of geologists. It is a major job to get all these people describing the rocks in the same way. Usually there is a reference collection of rocks/core/chips put together to help with this – and even so the supervising geologist has to continually ensure that rock descriptions are consistent. The data that this report is using was the result of generations of untrained and unsupervised drillers doing the logging. It has to be treated with a massive amount of caution. For this data to be accepted (with only some misgivings), as has been done in this report, shows extreme lack of experience or carelessness by the authors and by ECan. Any mineral exploration geologists that I know would be absolutely aghast at the idea of drillers logging holes, let alone anyone taking the results of this seriously.

The closest analogy to the Hinds situation in a mineral exploration/mining scenario would be a prospect that had been drilled by a number of companies over a long period of time. However, there would never be any possibility that the logging had been done by non-professionals. If there was any doubt about the quality of the geological work, and drill core or chip specimens weren't available, a number of holes would be twinned – i.e. holes drilled next to existing ones. These would be carefully logged and sampled with the results compared to logging and results from the earlier holes. I'm sure that in the Hinds situation the budget wouldn't stretch to twinning holes, however as a bare minimum an effort should have been made over a period of time to professionally log bores being drilled by farmers with the results compared to logs from the closest existing bores. This would have provided a degree of validation. If this was done, it hasn't been reported on. It would be a good idea to look at the log of K37/2416 (done by me) to see how little variation you can see in rotary drill chips in the Hinds area. I first learnt how to log rotary drill chips in 1978, but I suspect I overestimated the amount of clay in the upper part of this bore. Where I did describe some clay, it was in thin intervals that would not extend significant distance. It also has to be remembered that

there will be a lot of sample contamination with the sort of drilling. A 30cm interval with a little bit of clay in it could easily be spread over 2m.

Some of the driller's log descriptions are based on drilling penetration rates and information from their rig gauges – not from examination of what comes out of the hole. From this they wrongly interpret, for example, clay. Note how in K37/2416 from 112 – 120m the driller reported cemented clayey gravel with cobbles when from the chips, and what was coming out of the bore, I recognized only sandy silty gravel – like in the rest of the bore. This should be a very illuminating observation.

Drillers have their own way of describing rocks, for example they describe a very large amount of “claybound gravel” – presumably the “clay gravels” of the Golders report. In my report U06/08 I wrote that this description only means matrix-rich gravel. To my mind the only really hard data in the driller's logs are the descriptions of water (with the screen locations), and the descriptions of the gravel that contains the water – iron stained and free – which is something that the drillers seem to have been perceptive enough to develop themselves as it occurs with the water. Bizarrely, given that the report is about aquifer lithologies, the actual aquifer lithology data is the only information from the logs not used in the model. If the purpose of the report has something to do with aquifers and recharge, then surely the location of the aquifer material is of prime importance. This approach is like modelling a copper orebody and failing to include the copper mineralization – i.e. very strange indeed. However I am by no means sure that accurately modelling the sort of aquifer material present in the Lowcliffe outcrops is even possible.

I think there are really only two lithologies that can be inferred from the driller's logs – highly permeable matrix-free, iron stained, water-bearing aquifer material and poorly permeable silty sandy gravels. See my conceptual model in U06/08.

My understanding of water bore drillers in Canterbury is that they are focussed on drilling the well, finding the water, screening the correct interval and developing the well. Logging, which they don't have the training, knowledge or incentive to do, is a very low priority.

One of the essential requirements in exploration drilling is that holes should be very accurately located, this is done nowadays by differential GPS. How many of the wells in the Hinds area have not been located at all, has any well QA been done since I left in 2006? I recently read a wells database report by Marc Ettema, for 2003 I think, where the average error in well location for wells checked that year was 140m. This potential source of error is not addressed in the Golders report.

What is essentially happening with this use of the drillers logs is that their observations about the gravels of the Canterbury Plains are given precedence over the observations and ideas of expert geologists in the field.

The model results

Obviously from the above comments little needs to be said about the actual results of the model. Two examples and one comment will suffice –

- The strange blotchy nature of Figure 20 (an isopach map the like of which I've never previously seen) is a geological impossibility. The small blue blotches which represent entirely sandy and clean gravels are closely surrounded by red areas where there is almost no sandy or clean gravel. If this were true, it would require a river for an entire glacial period to be depositing something different in those blue splotch areas than it was just upstream, downstream or on either side. Each time it swept over these areas it would deposit just the same material, and something different adjacent to there. This map immediately illustrates that the data is faulty.
- Figure 22 shows thick units of “clay gravel”. These do not occur in the Canterbury Plains deposits or anywhere else in braided river deposits. This clay gravel (presumably based on the driller description of claybound gravel) would constitute a very effective aquitard if not an aquiclude. There are probably more highly permeable channel deposits where the “sandy gravel” is shown on the section, but there is no reason to believe that there is a unit of sandy gravel, distinct from the “clay gravel” here.
- The lack of geological interpretation of the model results is very telling.

The report concludes that *the models generated during this project provide a large step forward in understanding the geology of the Hinds catchment.*

I conclude that the examples of the model outputs given above support the arguments that the geological understanding and validity of the data would not produce a meaningful model. The findings of this report are not useable.

ECan should not have commissioned this report. They should have understood the geology well enough to know that this approach would not work. They should have also been aware of the poor quality of the geological data in their own wells database.

References

Browne, G.H. and Naish, T.R., 2003. Facies development and sequence architecture of a late Quaternary fluvial-marine transition, Canterbury Plains and shelf, New Zealand: implications for forced regressive deposits. *Sedimentary Geology* 158 (2003) pp 57-86.

Browne, G.H. and Thrasher, G.P., 1996. Stratal patterns and sedimentology of lowstand deposits of mid-Canterbury, New Zealand. Institute of Geological and Nuclear Sciences Science Report 96/13.

Davey, G.R., 2006 (1). A Contribution to the Understanding of Canterbury Plains Aquifers. Environment Canterbury Technical Report U06/08.

Davey, G.R., 2006 (2). Recharge from the Valetta Irrigation Scheme Environment Canterbury Technical Report U06/11.

Leckie, D.A., 1994. Canterbury Plains, New Zealand – Implications for Sequence Stratigraphic Models. *American Association of Petroleum Geologists Bulletin*, V. 78, No. 8 pp 1240-1256.

Miall, A.D., 1977. A Review of the Braided-River Depositional Environment. *Earth-Science Reviews*, 13 (1977)

Shulmeister, J., 2007. Evidence for the 2007 Selwyn – Waimakariri Groundwater Allocation Zone resource consent hearing

Grant Davey

15/5/17

6.2 Outward Correspondence

6.2.1 Letter to Grant Davey



17 May 2017
Grant Davey
grdavey@yahoo.com

Dear Grant,

Thank you for your letter dated 13 April 2017 and your email on the 16th May which outline your concerns with a technical report completed by Golders Associates on groundwater in the Hinds catchment.

I wish to advise you that your letter dated 13 April 2017 was tabled as correspondence at the Ashburton Zone Committee meeting on the 18th April. Your more recent email will also be tabled as correspondence at the zone committee meeting on the 30th May 2017.

The committee appreciate you raising your concerns. Given these concerns specifically relate to technical work, the committee have requested that the Environment Canterbury Groundwater Section provide a meaningful response to each of your concerns.

Thank you for your interest in the Ashburton Zone Committee.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "William Thomas", followed by a vertical line.

William Thomas
Chair; Ashburton Zone Water Management Committee

Brought to you by Environment Canterbury working with



Ashburton Zone Committee Report

Date 30 May 2017
Report to Ashburton Water Zone Committee
From Donna Field and Sarah Heddell, Ashburton Zone Team
Subject Immediate Steps Fund New Projects For Consideration

8 Immediate Steps Fund New Projects For Consideration

Purpose

To present three projects for consideration.

Recommendation

That the zone committee supports funding three Immediate Steps projects.

Report

Project Updates

To date 48 funding agreements, with works valued to \$567,519, have been entered into for projects that have been approved by the Ashburton Zone Committee. A further \$32,481 is available for allocation prior to 30 June 2017. The three projects for consideration are requesting a total of \$39,975.00, \$7,494 over the budget available to 30 June 2017. However as some of these project costs will fall after 1 July 2017 all three projects can be fully funded should the zone committee support this recommendation.

Projects for consideration

Three projects are presented for consideration at this meeting. The details of these are provided in the following pages. Full information has been sent to the zone committee biodiversity working group for consideration prior to the meeting.

Project name	Funds recommended
Lower Ashburton River Trapping Programme	\$7,475.00
Blink Bonnie Restoration Project	\$22,520.00
Davies Limestone Creek Stage 1	\$9,980.00
TOTAL	\$39,975.00

Ashburton River Lower Trapping Project

Project Details

Supporting Organisation/ Community Group	Hakatere River Mouth Group
Project CWMS Zone	Ashburton
Project Location	From State Highway 1 bridge to River Mouth.
Nature of Project	Creation, Protection
Habitat Type	Braided Rivers
Project Aim	The aim of the project is to increase breeding success of two main braided river bird breeding areas on the lower Ashburton River by setting up a trapping programme for mustelids, rats and mice. Area 1: SH1 bridge covers an area of 28ha, with 40 traps Area 2: River mouth covers an area of 54ha, with 50 traps
Project Outcomes	Reduction of the impact of predators on the braided river nesting birds at two main breeding areas in the lower Ashburton. Increased success rate of young birds fledging from the nesting colonies. Increased knowledge and community awareness of the Ashburton River bird habitat.
Actions proposed to achieve outcomes	Pest control area (ha): 82 Setting up trapping lines with advise from ECAN Baiting Traps Monitoring traps Recording results Removing traps

Overall Assessment Scores

Criteria	Score
Ecological Assessment (Existing and Potential) /39	33
Cultural	
Other Criteria Overall Rating	High
Immediate Steps Rating	High

Funding Requested (total project costs)

Immediate Steps	\$7475.00 (Total Cost \$11,475.00)
Funding note	Recommend to fund full amount requested.



Lower Ashburton River: Showing SH1 and River Mouth Trapping Areas marked in blue.



Volunteer participants in trapping workshop preparing for 2016 trapping season

Blink Bonnie Restoration

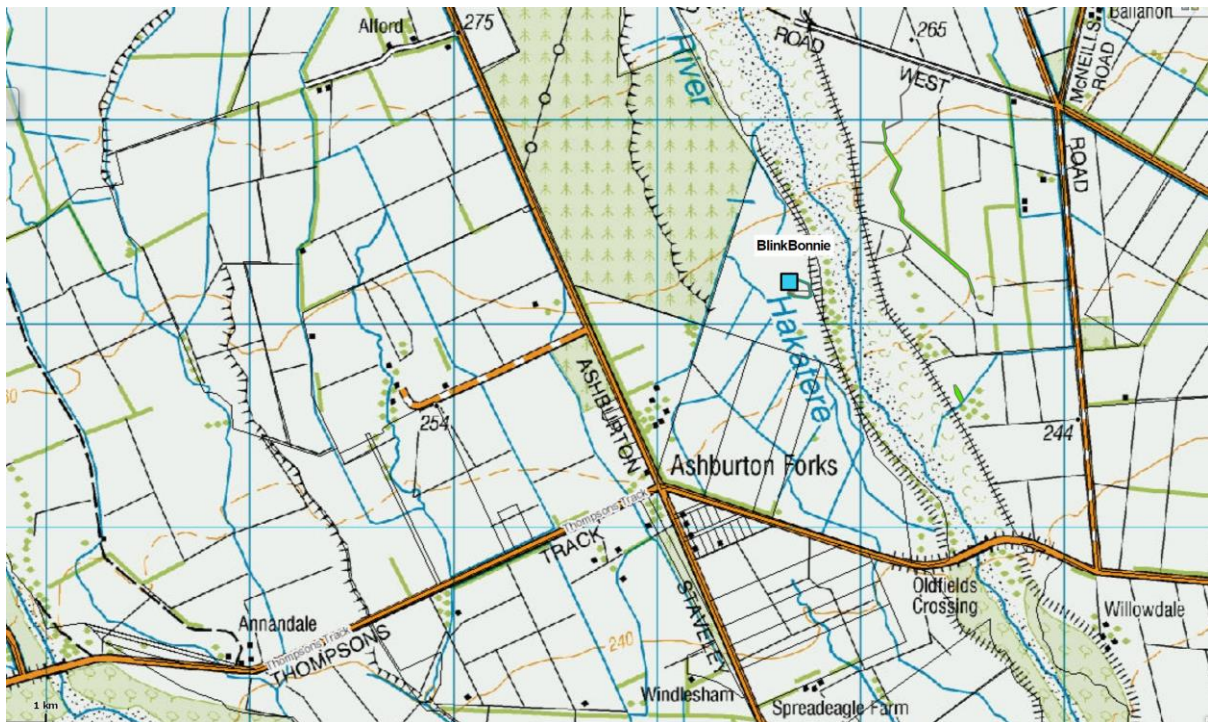
Project Details

Supporting Organisation/ Community Group	Craig Galloway
Project CWMS Zone	Ashburton
Project Location	1982 Ashburton Staveley Road, Staveley-Winchmore, Ashburton District
Nature of Project	Creation, Enhancement, Protection
Habitat Type	Artificial and Modified Water Bodies, Wetlands
Project Aim	To protect high value lowland wetlands, springheads and streams and increase aquatic and land based biota. The area is adjacent to the Ashburton River and is an example of a spring fed margin wetland which would have occurred along the length of the Ashburton River and will contribute to the integrity of the Ashburton catchment To increase the native biodiversity present around the man-made pond area, and throughout the property of interest
Project Outcomes	<ol style="list-style-type: none"> 1. Protection of high value springheads, streams and wetlands with fencing 2. Enhancement of the natural spring heads and the man-made spring fed pond that is part of the spring fed system with native planting. 3. Increased aquatic and terrestrial habitat for wildlife 4. A dense native riparian buffer 5. Filtration of sediments and nutrient run off from the surrounding agricultural land
Actions proposed to achieve outcomes	<p>Area to be fenced (ha): 3.40 Length of protective fencing (m): 750.00 Planting area (ha): 1.00 Weed control area (ha): 0.60</p> <ol style="list-style-type: none"> 1. Fence off the high value spring heads and associated wetlands and streams. <ul style="list-style-type: none"> - Area 1 will fence off an area of 1.12 ha of spring heads and stream - Area 2 will fence off an area of 2.25 ha of wetland and streams. 2. Control of willows, broom and gorse around pond. 3. Establishment of native eco sourced plants around the pond area and in area 1 above the pond. 4. Maintenance of the plantings and continued weed control.

Overall Assessment Scores

Criteria	Score
Ecological Assessment (Existing and Potential) /39	31
Cultural	
Other Criteria Overall Rating	High
Immediate Steps Rating	High

Funding Requested (total project costs)	
Immediate Steps	\$22,520.00 (Total Cost \$36,990.00)
Funding note	Recommend to fund full amount requested. A QEII covenant covering the project area is currently awaiting approval.



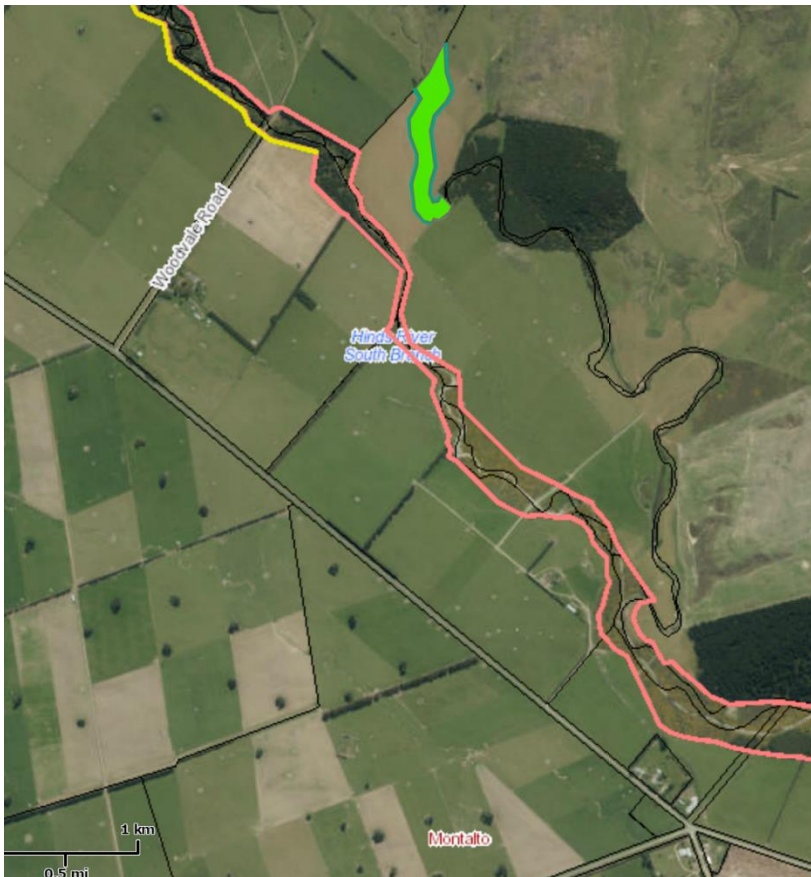
Location of Blink Bonnie project near Ashburton Forks



One of the springheads that feeds into pond and lower wetland.

Davies Limestone Creek Stage 1

Project Details	
Supporting Organisation/ Community Group	Gawler Downs (1995) Limited
Project CWMS Zone	Ashburton
Project Location	Gawler Downs 656 Lower Downs Rd Anama Ashburton
Nature of Project	Enhancement, Protection
Habitat Type	Hill Country Catchments
Project Aim	Protection of Limestone Creek to add to the corridor of protected areas in the catchment Protection of existing Matagouri Enhancement of riparian and instream habitat with riparian planting
Project Outcomes	Stock will be excluded from a large section of the creek where it enters into the property The fencing will also protect some matagouri in the area and allow for possible regeneration The planting of natives will enhance the instream habitat which has been enhanced by other projects up the catchment so this will go towards furthering that The fence will also include a wet area which may be planted in the future
Actions proposed to achieve outcomes	Area to be fenced (ha): 2.50 Length of protective fencing (m): 920.00 Planting area (ha): 2.50 Weed control area (ha): 2.50 Fencing of the creek where it enters the property to join the next section already fenced for stock exclusion and protection Planting of the fenced area back into natives
Overall Assessment Scores	
Criteria	Score
Ecological Assessment (Existing and Potential) /39	23
Cultural	*assessment with Rūnanga at time of writing
Other Criteria Overall Rating	Medium
Immediate Steps Rating	Medium
Funding Requested (total project costs)	
Immediate Steps	\$9,980.00 (Total Cost \$24,995)
Funding note	Recommend to fund full amount requested.



Map of the project area. The bright green shows the planting area and the slightly darker green shows the fence lines along Limestone Creek. The fence connects with the boundary fence at the top and just above the top of the map is a previous Immediate Steps funded project. (Red show Hinds River rating lines).



Photo looking down stream showing some of the the Matagouri bushes that will be protected, along with some of the existing protective fencing.

Ashburton Zone Committee Report

Date 30 May 2017
Report to Ashburton Water Zone Committee
From Dann Olykan & Anita Fulton, CWMS
Subject Draft Report on River and Lake Swimming for the Canterbury Region

9 Draft Report on River and Lake Swimming for the Canterbury Region

Purpose

1. The Regional Water Management Committee's Recreation and Amenity Working Group (RAWG) is seeking feedback from Zone Committees on the rivers and lakes across Canterbury that have been identified as their local freshwater swimming sites in the 'River and Lake Swimming in the Canterbury Region' draft report.

Background

2. The recreation and amenity targets in the Canterbury Water Management Strategy (CWMS) aim to see "an increase in the percentage of the lake and river sites used for contact recreation that meet recreational water quality guidelines", and "a positive trend in the availability and/or quality of recreational opportunities in each zone".
3. Some progress has already been made in quantifying the extent and state of recreational opportunities in Canterbury, including comprehensive reports on jet-boating and kayaking on Canterbury rivers, and data from Fish and Game's annual angling surveys that inform our progress on monitoring.
4. The River and Lake Swimming in the Canterbury Region draft report further builds on understanding the availability, characteristics and quality of recreational opportunities across the region.

Action Required

5. The Zone Committee is asked to check the accuracy of the local freshwater river and lake swimming sites identified for their region (Attachment 1) and using local knowledge provide details of any omissions from the list, including the characteristics of the site (refer to the primary attributes in Attachment 2).
6. Feedback is required by early June to enable RAWG to present the final report to the Regional Committee on 13 June 2017.

Attachments

- 1 Freshwater river and lake swimming sites in the Ashburton region.
- 2 Primary attributes used for assessing freshwater river and lake swimming sites in Canterbury.

Attachment 1

			Max water depth	Morphologic al variability	G/lines compliance			Horizontal visibility	Overall rating		No swmrs/ peak day	Presence facilities	Public or Private	
			1<2m, 2=2-3m, 3>3m	1=low, 2=med, 3=high	1>50%, 2=25-50%, 3<25% (maximum coverage)	0= 100% likelihood of toxic algae present (above 20% coverage); 1= either 2-4 times in 5 year period, or more than 2 months in swimming season; 2= either once in every five years, or short bloom affecting >1month of swimming season; 3= never been observed above 20% coverage	0= consistently very poor or poor (5/5 years); 1= at least 4/5 years fair; 2= consistently fair; 3= consistently good or very good	1<1.6m, 2=1.6-3m, 3>3m	1=low, 2=mod, 3=high	0= no known swimmers 1= family/ friends and locals; 2= tourists; 3=locals and tourists	0= Typically no one; 1=few (<10), 2=mod (10-20), 3=many (>20)	1=nothing, other (but no toilet), 2=toilet only, 3=toilet + other	0= no public access; 1=access across private land; 2=public walking (or off road vehicles); 3=public road and walking	
			EP estimate	EP estimate	ECan data + EP estimate	ECan data + EP input	ECan SFRG assessment (rainfall adjusted) and EP & perceptions (in red)	EP estimate	EP estimate	Survey data + EP	Survey data + EP	Survey data + EP	ECan data and EP	Associated values and Hazards - from the EP assessment. Note this is not an exclusive list of either.
Ashburton lakes	Lake Clearwater*		3	2	3	3	3	3	3	3	3	3	3	Other values: Trout fishing. Hazards:
Ashburton lakes	Lake Camp*		3	2	3	3	3	3	3	3	3	3	3	Other values: Boating facilities, camping area. Hazards:
Rangitata	Gorge to SH72	Toxic algae - not enough data points but no high cover counts so a 3;	3	3	3	3	2	1	2	3	2	3	3	Other values: Salmon and trout fishing, boating, kayaking. Hazards: Big river
Lake Hood		Water quality - Comprmise between Bayliss Beach and main swimming beach site	3	2	1	3	3	2	2	1	3	3	3	Other values: Hazards: Lot of plant growth in water column; boating
Ashburton lakes	Other Ashburton lakes		3	2	2	3	3	3	3	1	1	3	3	Other values: Trout fishing. Hazards:
Rangitata	Above the gorge		3	3	3	3	3	2	3	1	1	1	3	Other values: Boating and fishing; endangered birds. Hazards: big river, boats
Rakaia River	SH1 to sea		3	3	3	3	0	1	2	1	1	3	3	Other values: Salmon and trout fishing, Jet boating. Hazards: Boats, Willows, irrigation intakes
Rakaia River	Lagoon		2	2	3	3	0	1	2	1	2	1	3	Other values: Salmon and trout fishing, Boating. Hazards: Boats, big river, river mouth
Ashburton River	Above SH 72	Measured at SH72	2	2	2	3	3	2	2	1	1	1	3	Other values: Hazards: Willows
Rakaia River	Below Gorge to SH1	recorded at SH1 in north channel	3	3	3	3	0	1	2	1	1	1	3	Other values: Salmon and trout fishing, Jet boating. Hazards: Big river, willows, boating, intake and bridge structures
Rangitata	SH72 to sea	Combination of data at SH1 and above mouth	2	2	3	3	0	1	2	1	1	3	3	Other values: Salmon and trout fishing, Jet boating. Hazards: Big river, willows, boating, intake and bridge structures
Ashburton River	Ashburton nth tribs (incl Bower Stm)	This is an encompassing set of streams with Bower the focus	2	2	2	2	2	3	2	1	1	1	2	Other values: Hazards: willows
Ashburton River	SH72 to Sea*	at SH1	2	2	2	1	0	1	1	1	1	1	3	Other values: Hazards: Willows
ZC workshop additions														

Attachment 2

River and Lake Swimming in the Canterbury Region: Application of the river values assessment system (RiVAS)

The set of primary attributes used, their indicators, and thresholds of importance for assessing freshwater swimming sites in Canterbury are shown in the following table.

Primary attribute	Indicator	Indicator significance thresholds
Level of use	Number of swimmers on a peak use day – separated into categories	0= typically no one 1= <10 (low) 2= 10-20 (medium) 3= >20 (high)
Origin of users	Three categories (other than ‘no known users’): - Family/ friends - Locals - Tourists	0= no known users 1= family/ friends and locals (low) 2= tourists (medium) 3= locals and tourists (high)
Presence of facilities	Presence/absence of facilities: toilet(s), camping area, BBQ, playground, swimming hole	1=nothing + Other (if not a toilet) (low) 2=toilet only (medium) 3=toilet + other (high)
Public access	Public or private access and type	0= no public access 1=access across private land (low) 2=public walking (medium) 3=public road and walking (high)
Surrounding environment	Perception from a user perspective of surrounding environment. Scores: Low = odour issues and/or significant presence of rubbish and/or highly modified; Moderate = slightly modified; high= high naturalness, biodiverse	1= low/ poor 2= medium/ moderate 3= high/ excellent
Swimming holes	Maximum water depth (m)	1= <2 m (low) 2= 2-3m (medium) 3= >3 m (high)
Variable water depth	Morphological variability	1= Low 2= Medium 3= High
Algae and or weed (aesthetic appeal)	Compliance with national periphyton guidelines: 1= >50%, 2= 25-50%, 3= <25% (maximum coverage)	1= >50% (low) 2= 25-50% (medium) 3= <25% (high)
Blue-green algae: toxic algae	Likelihood of toxic algae present (above 20% coverage) 0= 100% 1= either 2-4 times in 5 year period, or more than 2 months in swimming season (low) 2= either once in every five years, or short bloom affecting >1month of swimming season (medium) 3= never been observed above 20% coverage (high)	0= 0 1= low 2= medium 3= high
Water clarity	Compliance with ANZECC (2000) guidelines: 1: <1.6 m horizontal visibility when river is below median flow (low) 2= 1.6-3.0 m horizontal visibility when river is below median flow (medium)	1= low 2= medium 3= high

Primary attribute	Indicator	Indicator significance thresholds
	3= >3.0 m horizontal visibility when river is below median flow (high)	
Overall water quality	Combination of science monitoring, EP and survey perceptions leading to: 0= consistently very poor or poor (5/5 years) 1= at least 4/5 years fair 2= consistently fair 3= consistently good or very good	0= very poor 1= low 2= medium 3= high

Ashburton Zone Committee Report

Date 30 May 2017
Report to Ashburton Water Zone Committee
From Dann Olykan & Anita Fulton, CWMS
Subject Priority Recreation and Amenity Restoration Sites

10 Priority Recreation and Amenity Restoration Sites

Purpose

The Regional Water Management Committee's Recreation and Amenity Working Group (RAWG) is seeking from each Zone Committee a list of up to five of their top priority recreation or amenity restoration sites for action in their region.

Background

At its March meeting, RAWG discussed the CWMS targets for recreation and amenity opportunities and progress being made towards meeting these targets. One of the outcomes from this discussion was a desire to gain a better understanding of what the priority recreation or amenity restoration sites are within each zone. Priority recreation or amenity restoration sites include those sites that the local community sees as having outstanding cultural or natural importance that need to be protected or enhanced for future generations.

RAWG is asking each Zone Committee to identify up to five of its top priority recreation or amenity restoration sites within its zone and identify key actions to better protect or enhance each site.

RAWG will consider the list of priority sites across the region and present it to the Regional Committee so that they can understand the diversity of the priority sites that require action and advise the Zone Committee on how it can best support the implementation of these actions.

Action Required

Zone Committees are asked to provide RAWG with a list of up to five of its top priority recreation or amenity restoration sites in its region.

Information that RAWG is seeking includes:

- the name and location of the recreation or amenity restoration site;
- a brief description of its importance to the community;
- outcomes the community would like to see achieved; and
- proposed actions to achieve these outcomes.

Information can be forwarded to Anita Fulton by the end of June 2017.

The Regional Committee will then work with Zone Committees on how it can best support the implementation of these actions.

APPENDIX 1

Immediate Steps Fund: Background of Priority Areas

Purpose

To provide background information on Immediate Steps Priority areas for the Ashburton Zone as requested at the April 2017 meeting.

Recommendation

That the zone committee notes the paper.

Report

Determining Priorities for Immediate Steps Funding

In April 2011 two areas were recommended and agreed to as biodiversity priorities for Immediate Steps funding in the Ashburton zone.

They were (Map 1):

1. Foothills and lowland forest streams and wetlands along the inland margin of the plains
2. Coastal wetlands, dongas, hapua and streams from Wakanui Creek south to, but not including, the Rangitata River mouth

This was based on

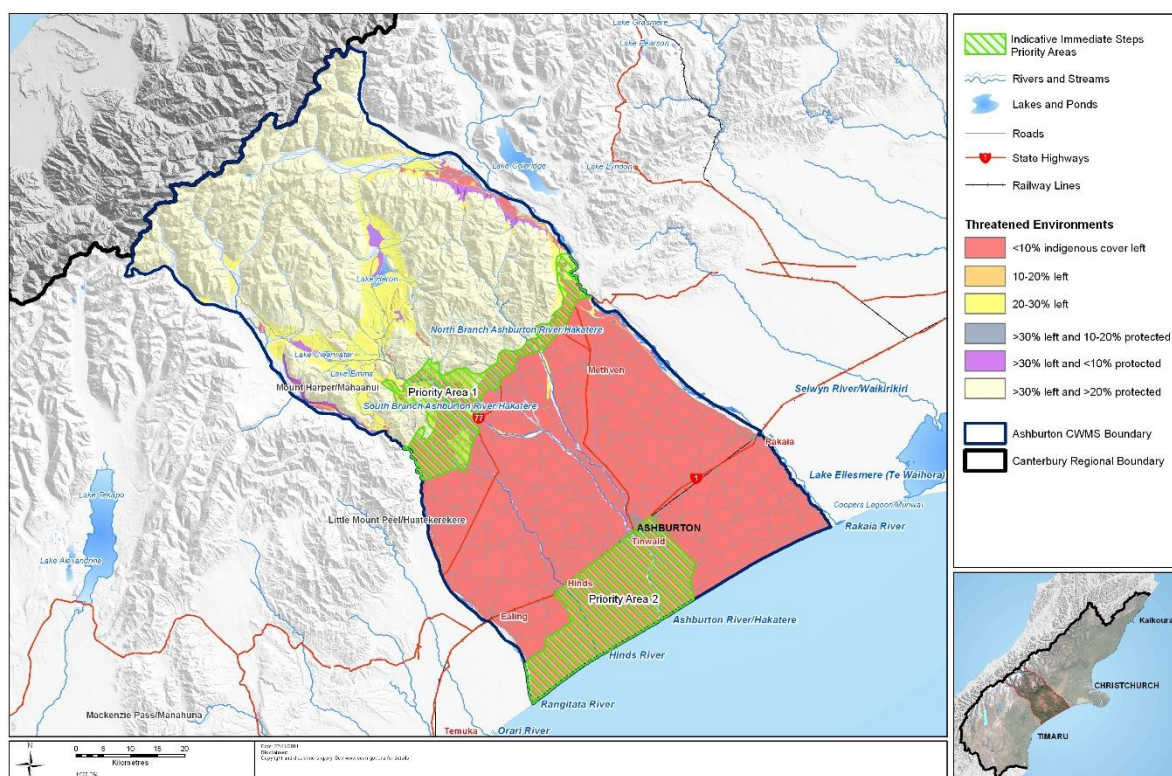
- High and diverse ecological values of the project areas and the imminent threats or risks to these values
- The areas largely form a mosaic of opportunities on a wide range of private land ownership
- The areas represent situations amenable to discrete protection (i.e. fencing and planting) and management (i.e. pest and weed control) activities
- taking account of how the funding available through the Immediate Steps programme can best contribute to the protection and enhancement of indigenous biodiversity in this Zone

Further details from the April 2011 paper are copied in Attachment 1.

The Ashburton Zone Committee – Five Year Outcomes 2016 (agreed in May 2016) also include the milestone:

- Priority weed control work for braided river bird nesting habitat (on the Ashburton River) is completed with support from Zone Immediate Steps Programme.

Since the time of the milestone development further work has been undertaken to identify priority actions for braided river bird nesting habitat on the Ashburton River. In October 2017 the Ashburton River Braided River Bird project received funding from the Canterbury Biodiversity Strategy programme which will contribute to the cost of weed control for the area. As a result of the above an application will be brought to the May 2017 Ashburton Zone Committee for an Immediate Steps Project that will contribute to achieving this outcome via pest control. The pest control is another priority action which involves several community groups and is seen as appropriate for Immediate Steps funding.



Project Assessments

As part of the assessment of all Immediate Steps projects consideration is given to their contribution to Zone Committee ZIP recommendations, including if they are in a priority area. This is reflected in the information provided to the zone committee in the 'Immediate Steps rating' criteria for each project presented for approval.

ATTACHMENT 1

Expert From Ashburton Zone Committee Immediate Steps Fund – a strategic approach for 2-5 year funding – paper presented to Ashburton Zone Committee 26 April 2011

Priority Area 1: Foothills and lowland forest streams and wetlands along the inland margin of the plains

Rationale regarding recommendation for inclusion in Immediate Steps Funding

This area has many sites of high value biodiversity remaining and currently pressure for further development is threatening these values. The steps required for protecting these values fit within the criteria for Immediate Steps Funding. Any projects completed are likely to have good links to larger existing protected areas along the foothills, giving a high degree of ecological connectivity.

Examples of possible Objectives from Immediate Steps Funding in this area:

- Identify and implement actions that protect ecosystem health in foothill streams.
- Improve the health of one significant wetland.
- If the Zone Committee identifies a specific catchment for focus, than one of the objectives above may be modified to reflect this.

CWMS Water Resources

Includes Hill country catchment; wetlands.

Biodiversity Values

- A diversity of Foothill source streams of various sizes, and draining a range of geologies and land forms (such as Taylors, Bowyers, Pudding Hill and many other streams).
- Spring fed streams arising from seeps and wetlands in valleys and the toe of the foothills
- Remnant wetlands in valleys and along the toe of the foothills
- Forest remnants in stream valleys and along the edge of the foot hills.
- Valley floors and toe of the foot hills contain native vegetation and habitats on 'At Risk' and 'Critically Under protected' land environments.
- Does not include any areas identified as high priority in the Canterbury Biodiversity Strategy but collectively contain a large number and high diversity of potential protection and restoration sites in private ownership

Cultural Values

- All remaining biodiversity values within the zone are considered culturally significant, requiring protection and restoration.

Threats to biodiversity values

- Loss of stream and wetland habitat through confinement of streams and draining of wetlands occurring due to further land development for farming and other land uses
- Loss of remaining dryland vegetation remnants in and adjacent to intensified land that may be at risk due to further land and irrigation development
- Further weed encroachment along streams and into wetlands (particularly broom, sycamore, false tamarisk)
- Pests (particularly pigs, but also goats and deer) reducing natural regeneration
- Reduction in water quality through increased stock access to waterways or poorly managed land use intensification
- Reduction in water quantity due to increased abstraction for stock and/or irrigation supply

Known existing biodiversity protection activities

- Several areas under long term protection (District Council & DoC Reserves, and QEII covenants on private land)
- Foothills Landcare Group activities

- Two wetland protection projects supported through Year 1 Immediate Steps Funding

Relevant CWMS targets & Goals

2010	2015
Implement actions to correct the decline in freshwater species, habitat quality or ecosystems.	Highlighted any foothill streams where ecosystem health is declining, and identified the cause with an action plan in place
Prevent further loss of area of naturally occurring wetlands	Protected all and restored at least two significant wetlands in each zone

Types of activities that could be supported by Immediate Steps Funding

- Wetland fencing; weed and animal pest control; restoration planting
- Stream fencing; weed control

Other (non-Immediate Steps Funding) actions needed to achieved CWMS targets & goals

Planning Mechanisms

- Prevent further loss of wetlands.
- Avoid barriers to connectivity.
- For small streams, set environmental flows and avoid takes that individually or cumulatively abstract a large proportion of stream flow.
- Set water quality standards and catchment contaminant load limits.
- Avoid or manage land use intensification in adjoining catchments.

Priority Area 2: Coastal wetlands, dongas, hapua and streams from Wakanui Creek south to, but not including, the Rangitata River mouth

Rationale regarding recommendation for inclusion in Immediate Steps Funding

The coastal area contains many small pockets of native vegetation associated with dongas, stream and river mouths. These areas have always been important mahinga kai and contain many wāhi tapu and wāhi taonga. These areas are remnant of what was once a much larger area. They are under continued threat from ongoing development, both development immediately adjoining causing reduction in habitat areas, and also development further afield causing reduction in water flows and quality. Activities funded through Immediate Steps could make good gains in protecting these areas from the threats of reduction in habitat area, and some of the sources of decreased water quality. Immediate Steps funding could also assist in restoring areas through weed control and management. Threats from water quality and quantity further afield need to be addressed through other mechanisms.

Examples of possible Objectives from Immediate Steps Funding in this area:

- Protection of hapua and associated coastal wetlands from any further habitat loss due to land development.
- Improvement of habitat quality in hapua, coastal wetlands or donga through weed control.
- Protection of known habitat sites of Canterbury Mudfish (or other rare/threatened species).
- Ensure land management in the riparian zone of a specified catchment is improving ecosystem health of that waterway.

Because of the high number of potential sites in this area it is recommended that the Zone committee refine the above objectives by choosing specific catchments or sub areas in which to focus their funding. Factors to consider include permanence of opening of waterway to the sea, current quality of habitat, presence of any rare or threatened species, likely future changes to hydrology (if flow is currently contributed to by stock water or irrigation discharges), wāhi tapu and wāhi taonga sites, as well as potential partnership opportunities and community involvement.

CWMS Water Resources

Includes hapua, lagoons, estuaries; wetlands; lowland Streams; artificial and modified water bodies.

Biodiversity Values

- Hapua of Ashburton River/Hakatere and associated habitat of native fish, recreational and sports fish, wading bird, and vegetation features.
- Streams and wetlands associated with incised 'dongas' descending the coastal cliffs along the coast particularly from the Ashburton River/Hakatere mouth to the Rangitata River mouth.
- Coastal groundwater fed streams and drains along the coast east of the State Highway that contain various populations of Canterbury mudfish, native fish communities, and wildlife refuges from adjacent intensified land use.
- Dryland or native vegetation remnants often associated with the 'dongas'.
- Wetland, lagoon and beach at mouth of Wakanui Creek (remnant native vegetation, wading and forest bird habitat)
- Lower reaches of Wakanui Creek containing remnant native vegetation along the margins
- Area is dominated by 'Chronically Threatened' and 'Critically Under protected' land environments.
- Includes the Hinds River hapua and lower reaches receiving lowland stream and drain inflows.

Cultural Values

- The coastal sites have always been important for mahinga kai and highly used.
- Contain many wāhi tapu and wāhi taonga.
- Their degraded state is of concern.

Threats to biodiversity values

- Loss of the small remaining areas of native vegetation due to ongoing land development
- Reduction in flows – effects of this both instream and on connectivity with marine environment through changes in river mouth opening regimes
- Reduction in water quality
- Human damage from vehicle use, particularly on larger hapua
- Weed encroachment

Known existing Biodiversity protection activities

- Stream enhancement projects, both on individual properties and coordinated catchment approaches in several areas
- Two projects focused on protection of Canterbury Mudfish
- Ashburton River/Hakatere Mouth Action Committee activities

Relevant CWMS targets & Goals

2010	2015
Prevent further loss of area of naturally occurring wetlands.	Protected all and restored at least two significant wetlands in each zone.
Implement actions to prevent further loss of ecosystem health in river and coastal mouth lagoons.	
Identify and prioritise for protection lowland stream ecosystems in each zone.	Improved ecosystem condition in at least 10% of lowland streams in each zone.
Maintain existing high quality indigenous aquatic and dryland ecosystems on the plains	

Types of activities that could be supported by Immediate Steps Funding

- Stock exclusion
- Management of vehicle access to sensitive areas around wetlands and hapua
- Weed and animal pest control
- Removal/reconstruction of any structures that are barriers to fish passage
- Restoration planting

Other (non-Immediate Steps Funding) actions needed to achieved CWMS targets & goals

Planning Mechanisms

- Prevent further loss of wetlands.
- Avoid barriers to connectivity.
- Set environmental flows for Ashburton River.
- For small streams, set environmental flows and avoid takes that individually or cumulatively abstract a large proportion of stream flow.
- Set water quality standards and catchment contaminant load limits.
- Avoid or manage land use intensification in adjoining catchments.
- Identify important lowland stream sites.
- Protect and enhance lowland streams with high biodiversity functions.
- Investigate requirements for flow and habitat maintenance of lowland streams.

Ashburton Zone Committee Meeting

Tuesday 30 May 2017

Timetable		
Time	Item	
11:30 am	Meeting Commences	
12:30 pm	Lunch	

Order of Business

- 1 Welcome, Karakia and Introductions
- 2 Apologies
- 3 Extraordinary Business
- 4 Register of Interests1
- 5 Confirmation of Minutes3
- 6 Correspondence.....6
- 7 Facilitator's Update (verbal)
- 8 Immediate Steps Fund New Projects For Consideration14
- 9 Draft Report on River and Lake Swimming for the Canterbury Region21
- 10 Priority Recreation and Amenity Restoration Sites.....25

Appendices

- 1 Immediate Steps Fund: Background of Priority Areas26